

CS4471 Lab Assignment 4

Cisco Router & Switch Configuration

Connect your router to the network as shown in the network topology drawing. Connect a rollover cable from the console port of the Cisco 1600 (or 2500) router to a 9-pin serial port on a computer. Download Putty or Teraterm communication software from Internet onto your computer and configure the terminal emulation software to 9600 bps, 8 data bits, no parity, and 1 stop bit. From the software program, verify that you can connect to the router console prompt and get into enable mode. Reset the router to its factory default state by executing “**erase startup-config**” and “**reload**” commands. If you are not able to log into the router, see step-by-step instructions for resetting the password at <http://cs3.calstatela.edu/~egean/cs447/cisco1600-passwd-reset.htm>. Configure the Ethernet interface on the router with IP address specified in network topology drawing. Your router’s default gateway address and default route should be set to 10.86.44.1. Change the hostname of your router to RouterXY (where XY is your group number). Change the default router gateway of your computer’s virtual operating system from 10.86.44.1 to the IP address of the Ethernet interface of your Cisco 1600 (or 2500) router. From a command prompt on your computer, verify that you can ping the Cisco 1600 (or 2500) router’s Ethernet interface and have connectivity to the Internet.

1. (20 pts) Simulate a wide-area-network connection by connecting the WAN ports of two Cisco routers together via two V.35 serial cables (or one crossover serial cable). DCE side needs clock rate set. Configure the IP address of the WAN serial port (s0) with IP address specified in network topology drawing. Netmask should be 255.255.255.0. From a command prompt on your computer, verify that you can ping your own WAN interface (192.168.x.x) on your Cisco 1600 (or 2500) router. Verify that you can ping the other endpoint (192.168.x.y on neighbor’s s0) of your WAN connection. Submit a screen capture of the output of a successful traceroute command from your computer’s command prompt to the other WAN endpoint (192.168.x.y) of your router’s WAN connection.
2. (20 pts) Turn on RIP version 2 so that your router will learn how to reach other indirectly connected networks in the lab.
 - a. Submit a screenshot of your router’s routing table. It should contain RIP routes advertised by five other networks (192.168.x.0) in the lab. Work with your fellow classmates if needed.
 - b. From your computer’s command prompt, do a traceroute to the serial WAN interface of another group’s router whose network was learned by your router via RIP version 2. Submit a screenshot of the result of the traceroute.
3. (20 pts) From your computer, capture and decode RIP version 2 packets advertised by your router.
 - a. What UDP port number is used by RIP advertisement packets?
 - b. Print out a screenshot from Ethereal or Wireshark packet analyzer that shows the decoded network routes being advertised by your router. You will need to expand and drill down into the packet decodes to see this information.
4. (20 pts) Save the router’s current configuration from main memory to NVRAM.
 - a. What Cisco command did you use to accomplish this?
 - b. Print out a copy of this configuration file.
5. (20 pts) Connect your console cable from your computer’s serial port to the console port of your Ethernet switch and configure its hostname to SwitchXY (where XY is your group number). Also configure the IP address of your switch to the value shown in the network topology drawing. Verify that you can ping the IP address of your switch from the command prompt of your computer.
 - a. Submit a screenshot of output of “show cdp neighbors” and “show mac address-table” from your switch. Circle the mac address that belongs to your computer.
 - b. Submit a copy of the configuration file of your Ethernet switch.